Guideline: Generative Artificial Intelligence and Research

Scope

This is a resource for all persons engaged in research[1] at UniSA, including academic staff, adjuncts and students (research degree, post-graduate, honours and undergraduate).

Overview

Generative Artificial Intelligence (GenAI) is a branch of computing that trains algorithms on existing datasets to produce outputs (text, data, audiovisual files) designed to mimic human-like products. GenAI systems encode information present in its training data and generate probable responses based on specific user inputs.

GenAI brings both opportunity and risk when used in research. Improved efficiencies and productivity are clear advantages to using these models, for example in solving data-driven problems faster or perceived enhanced readability of research outputs. Important risks when using GenAI in research are potential breaches in research integrity including matters related to confidentiality, intellectual property and authorship. As GenAI can be used as a research tool, the researcher must also take responsibility for their use of GenAI and maintain human oversight of GenAI derived outputs.

The University expects that all researchers uphold the highest standards of research integrity by abiding to the principles of responsible research as outlined in the Australian Code for the Responsible Conduct of Research (Code) and the University's Research Integrity Policy. If using GenAI in research, it is the researcher's responsibility to ensure the principles in the Code and the University's policy are adhered to; non-compliance may result in a breach of research integrity. There may be disciplinary differences regarding the use of GenAI in research and researchers should make themselves aware of these.

PRINCIPLES: RESPONSIBLE RESEARCH CONDUCT	CONSIDERATIONS WHEN GEN AI IS USED
HONESTY, RIGOUR AND ACCOUNTABILITY in the development, undertaking and reporting of research **TRANSPARENCY** in declaring interests and reporting research methodology, data and findings	• its role, influence and extent of application should be duly noted; researchers must accept responsibility and accountability, taking ownership for content generated through GenAI; • recognise and acknowledge biases and confirm the reliability and accuracy of information generated through GenAI; • acknowledge when GenAI models are used;
FAIRNESS in the treatment of others **RESPECT** for research participants, the wider community, animals and the environment **RECOGNITION** of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is of particular significance to them	• appropriate recognition and referencing of information sourced from GenAI models; • use caution when inputting data into GenAI models, especially confidential, commercial-in-confidence, copyrighted and human data, noting the potential risk of losing data ownership and that entering information into GenAI models may be considered a breach of confidentiality; • recognition of data sovereignty specific to Aboriginal and Torres Strait Islander people;
PROMOTION of responsible research practices	• staff with supervisory responsibilities to students undertaking research must support a culture of responsible research conduct.

[1] As defined by the Australian Code for the Responsible Conduct of Research, the concept of research is broad and includes the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies, inventions and understandings. This could include synthesis and analysis of previous research to the extent that it is new and creative.

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Frequently Asked Questions

Can I use GenAI as a research tool?

The use of GenAI as a research tool is not prohibited at UniSA but is dependent on how and why you plan to use GenAI. It may be appropriate to use GenAI for the purpose of data collection and/or analysis. In some disciplines, GenAI may be readily used in research, so students should first discuss with their supervisor and/or their supervisory panel or other researchers with experience in GenAI to understand if GenAI is appropriate for their research. It is important to remember that any data submitted into these tools has a risk of entering the public domain for use by unspecified third parties. If there are ethical, legal and/or research integrity reasons why you should not share your data with others then researchers should pay close attention to End-user agreements of the GenAI tools they use to ensure that the use of GenAI does not result in a breach of ethical or research integrity principles.

Can I use GenAI to help me write a literature review?

Researchers may use GenAI to find, summarise and compare articles noting that:

- GenAI lacks the ability to perceive, rationalise or critique information and may produce inaccurate or biased content, i.e. “AI hallucination”, also known as confabulation, can occur when an AI model generates false information but presents it as fact.
- It is the researcher’s responsibility to verify the accuracy of any content developed with the help of GenAI.

Can I use GenAI to help me write my thesis?

Prior to using GenAI, students must discuss this with their supervisor and/or their supervisory panel or other researchers with experience in GenAI to ensure adherence to the principles of responsible research. GenAI may be used to support the writing process but should not be used entirely for interpreting data or for drafting your thesis. Consider using editorial resources, refer to Thesis Writing.

Doctoral students are reminded that the purpose of a doctoral degree is to develop new knowledge and that the thesis reflects this original contribution to knowledge which will be examined through the oral defence. Therefore, it is important that students are able to describe and defend how they used GenAI and the information produced.

How do I reference GenAI?

All researchers must be transparent when reporting methodologies and tools used in the research process and this includes referencing when GenAI is used in data collection or analysis. Refer to the UniSA referencing guide and UniSA’s Artificial Intelligence for Teaching and Learning in Higher Education guide for referencing expectations; note that GenAI should never be listed as an author.

Students who use GenAI in their research must acknowledge this in their thesis or research paper. Students should discuss where this information should be referenced and what level of detail is required with their supervisor. In some cases, it may be relevant to include the prompts supplied to the GenAI model along with the responses received.

Can I use GenAI to help me prepare for my Oral Defence?

Yes, GenAI can be used in preparing for the Oral Defence; for example in generating potential questions you might be asked in the Oral Defence, similar to preparing for a job interview. It is important to first discuss this with your supervisor.

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Can I use GenAI to help me write grants or research papers?

This is dependent on the publisher or granting agency to which you are submitting a grant or paper. The National Health and Medical Research Council and Australian Research Council each have a policy on the use of GenAI for the purpose of crafting and reviewing grant proposals. As many publishers have a policy on GenAI you need to check with the publisher before submitting articles.

Can I use GenAI to help me create presentations or translate my research?

GenAI can be used to translate your research for a different audience making it easier to understand. There are some more advanced GenAI models that can repurpose scientific manuscripts into presentations. When using GenAI for these purposes, never input confidential information.

Can I use GenAI to help me review grant proposals, review papers or examine theses?

Inputting data into GenAI models may constitute a research integrity breach. Some GenAI models provide users options for how the data can be used once it has been uploaded; however, there is always a risk that the information may be reused either intentionally or otherwise. Researchers are advised not to share data or information with GenAI models that they wouldn't normally make publicly available, i.e. confidential, commercial-in-confidence, copyrighted and human data.

Reviewers are required to maintain confidentiality when reviewing grant proposals and articles; always check with the granting agency, publisher or university on their GenAI policy. Using GenAI for the purpose of review is a breach of confidentiality as the information inputted into GenAI could be disseminated further without consent. The National Health and Medical Research Council and Australian Research Council both state that GenAI models cannot be used for reviewing grant proposals.

Similarly, the use of GenAI for examination of a thesis may be considered a breach of confidentiality. The information submitted into a GenAI model has a risk of entering the public domain for use by unspecified third parties. Note that all UniSA thesis examiners sign a Confidential Disclosure Deed agreeing not to disclose or divulge information to any third party.

Other Resources

UniSA Policy: Research Integrity Policy

UniSA Procedure: Research Degrees Student Research Misconduct

UniSA Library Guide: AI for Researchers

UniSA Library Guide: Artificial Intelligence for Teaching and Learning in Higher Education

Department of Industry, Science and Resources: Australia's AI Ethics Principles

NHMRC: Policy on Use of Generative Artificial Intelligence in Grant Applications and Peer Review

ACGR Good Practice Guidelines for Generative Artificial Intelligence Use in Graduate Research Training

Australian Research Council: Policy on Use of Generative Artificial Intelligence in the ARC's grants programs

Tertiary Education Quality and Standards Agency: resource for using GenAI in research

GenAI strategies for Australian higher education: Emerging practice

Living Guidelines on the Responsible Use of Generative AI in Research

Initial guidelines for the use of Generative AI tools at Harvard

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