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Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Addressing GenAI use through transparency in teaching and learning in a Master of Cyber Security program

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This paper explores the use of Generative AI (GenAI) in university assessments, focusing on transparency and best practices. The study examines the implementation of GenAI guidelines in a Master of Cyber Security program from 2023 to 2024. Course conveners aimed to enhance learning by encouraging GenAI use for efficiency, while addressing academic integrity concerns. The evolving university policies and the challenges of detecting GenAI misuse are discussed. The paper highlights the importance of clear guidelines and transparent communication to foster shared understanding for AI use. Findings suggest that transparent AI policies can support both students and educators in navigating the complexities of AI in education.

Keywords: Generative AI, assessment, cyber security, online, postgraduate

Introduction

The use of GenAI technologies and AI applications and its constant evolution has had a huge impact on the university sector, particularly in relation to the impact on assessment and academic integrity that students and Academics alike are now faced with (Luo, 2024). The challenge of how to use AI in assessment is becoming prominent as we endeavour to design relevant assessment tasks and activities that allow us to assess our students work. During 2023 and 2024 within the University of New South Wales (UNSW) Canberra Faculty School of Professional Studies (CSPS) cyber security program Course Conveners have been looking at and implementing ways to inform students of AI use and best practice within their assignments. The university began by providing guidelines for students on the use of GenAI in a general way which meant academics had to interpret these guidelines in an attempt to put the guidance into practice. This included both setting boundaries for its use and the way in which students could use it. While this was based on the relevant university policies and guidelines at the time we perceive it is the interpretation of these guidelines that is important and where the value lays in conducting this research.

Course Conveners wanted to encourage students to use GenAI to 'help' them and enable them to work faster and speed up the writing process, freeing them up to spend more time on more meaningful tasks. Areas that require the use of higher order thinking skills and idea development. In other words, the Course Convenors saw these tools as a way of enriching students learning experience and allowing them to learn skills needed in the future around the use of AI to assist with work productivity. One of the challenges the team faced is that the current tools and processes do not make it easy to identify those students that are using it to shortcut thinking. The use of detection tools, such as functionality within Turnitin (Turnitin LLC, 2024), open students who are engaging with the technology, as instructed, to potential issues relating to conduct and integrity. This creates a strange dynamic where students that engage in good faith are highly visible, while others are not.

This paper investigates the different ways GenAI use was implemented in assessment tasks from 2023 to 2024 and also looks at the current UNSW policy around AI use, how it has changed during this time and how its use has been encouraged in the Cyber Security program. Looking at this challenge as a technology 'arms race' is fraught. One approach to combat miss use of GenAI and encourage good faith use is to engage through transparent engagement with the various student cohorts. This involves providing students with examples and guidance with a view to putting them on a good path. In 2023 the courses within this program began implementing the provision of a detailed statement and guidelines to students for GenAI use. Expectations around its use was clearly set out and outlined to students and to markers along with how these fits in with the university expectations and policies.

Literature review

Literature around this topic is new and extensive, with a plethora of new research and opinion pieces written in the past 18 months. This is an emerging area of concern for institutions and the management of AI use has become a key priority for the sector. Although much has been published within this area and numerous systematic literature reviews within this area there is a gap in the impact of AI on the Higher Education sector (Abu Khurma et al., 2024; Bannister et al., 2023), and specifically in relation to student use of ChatGTP within assessment tasks and how best to practically manage this growing area of concern for both students and course conveners and communicate expectations around AI use to students (Abu Khurma et al., 2024). Current research focuses on students' perceptions and use of Chat GPT (Abbas, et al., 2024; Alshammari, et al., 2024; Tala, et al., 2024), and the ethical and academic integrity concerns raised and ways in which AI can be used ethically within the Higher Education context for helping in learning and teaching (Airaj, 2024; Alier, M, et al., 2023). This included the impact its use is going to have on educational settings and challenges that it is going to bring and that will need to be overcome particularly in assessment (Bower, et al., 2024).

The impact of GenAI is prominent in assessment, especially in relation to the issue of academic integrity and ensuring that students have awareness and are informed of their responsibilities and strategies for using AI to assist with assessment tasks is a key discussion in this paper. Students' and teachers' perceptions of AI use in relation to academic integrity and the need for guidelines to be implemented around its use (Crawford, et al., 2023) have previously been investigated. As has Chat GTP's role and the impact on academic integrity (Bin-Nashwan, et.al, 2023) student confidence in the use of GenAI tools particularly in relation to their experience, application within assessment tasks or if it can or cannot be used is also a consideration factor (Kelly, et al., 2023). The impact of ChatGTP on assessment tasks and the types of tasks being set for students (Bower, et al., 2024) will ultimately spill over into assessment policy within the higher education sector (Liu, et al., 2023). Being clear and concise with students and providing comprehensive information and guidelines (Moorehouse, et al., 2023) about AI use and policy will become a key part of assessment tasks when they are being developed (Crawford, et al., 2023; Xia et al., 2024).

This project uses the underpinning theory of Transparency in Learning and Teaching (TiLT) in higher education framework (Winkelmes, 2023) as a theory that guides both the course design and subsequently guides the academics in how they work with students across the program.

Methodology

To delve deeply into how educators are engaging with AI with their students and within university policies we looked at a number of courses taught in a Master of Cyber Security from the middle of 2023 to the middle of 2024, a period of 12 months. There were eight courses included in the study from 2023 and to July 2024. These courses are taught in an intensive 'Hexamester' model. There are six teaching periods per year with each Hexamester having a six-week teaching term plus an orientation week and one trailing week to finalise grading. These Hexamesters have courses rotating each year, so they are not always taught at the same time which meant that there were a total of 17 deliveries of these eight courses during the timeframe. Table 1 shows the course names and the times in which they were taught.

Table 1
The courses investigated that used AI statements in the Master of Cyber Security

Course code and name	Course Taught	Type of course
ZZCA9204 Cybersecurity Ethics	Hexamester 4 (H4) 2023* / H1 2024* / H4 2024**	Core course
ZZCA9202 Data Security and Privacy	H3 2023+ / H6 2023* / H3 2024*	Core course
ZZCA9221 Cyber Management and Governance	H5 2023* / H4 2024**	Specialisation
ZCA9205 Cyber Operations	H1 2024*	Specialisation
ZZCA9222 Cyber Threats and Crimes	H4 2023* / H3 2024*	Specialisation
ZZCA9206 Cyber Risk and Resilience	H3 2023+ / H2 2024*	Specialisation

ZZCA9211 Digital Forensics	H2 2023+ / H1 2024*	Specialisation
ZZCA9208 Management and Leadership Capstone	H6 2023* / H4 2024**	Core course

+ no on course statement (policy only), * planning / drafting assistance, ** simple editing assistance

The convenors responsible for the involved courses workshopped examples and approaches to describing AI use which formed a common foundation. This resulted in each course having a consistent and well understood generative AI statement, which is based on the current policy and guidelines, and formed the foundation of discussions with each student cohort.

On the assessment summary page for the course the AI Permission is listed in the table after the due date. The guidelines for each delivery link back to the current advice to all students which is available publicly (UNSW, 2024). As such the task of providing transparent advice on how to interpret the policies requires regular review. For the purposes of this paper ZZCA9208 Management and Leadership Capstone has been interrogated around the concepts of the AI statement in the course and the instructions given to the students. This course has been chosen as it is a core course towards the end of the masters (within 3 final courses), and it was taught in both 2023 and 2024 during the investigation period.

Results and discussion

The university has had evolving rules around allowing the use of AI for students and the guidance can be confusing for staff to implement. To expose students to the use, they are given the full table of permission levels and then a statement on what it is for this course, which is then linked to the university resources. Each course then has an example in it such as Figure 1 and 2 below.

Planning Assistance Example:

Assume we have been asked to define Cyber Security. If we pose this question to ChatGPT it creates quite a good response. "Cyber security involves protecting computer systems, networks, and data from unauthorized access, damage, or disruption, ensuring confidentiality, integrity, and availability of information in the digital realm." (OpenAI, 2023)
This is a great start to help us get a feel for the topic. However, if I were to present this as my own definition, there are a number of issues. Including:

- The absence of your commentary or contextualisation of the 'found' definition,
- The lack of citation (of the concepts within), for example, the CIA Triad (Fruhlinger, 2020),
- The fact that there are popular (if not authoritative) definitions from organisations such as the International Standards Organisation (ISO, 2023) or the US National Institute of Standards and Technology (NIST, 2023).

So, if this was our starting point, we now have a frame of reference. Perhaps most importantly a list of concepts we can begin to look up OR ask more questions about. From here we could ask:

- "What organisations are globally recognised as defining cyber security terminology?"
- (Refine the list by asking) "Which of these are in popularly used in Australia?"
- (Pick a few from the list) "Does <chosen organisation> get referenced by the Australian government in reference to cyber security?"
- After reading the generated advice and following the breadcrumbs to the actual definitions (which we can now add to your bibliography), we could return to ChatGPT to test your new understanding:
- "Why does the definition of cyber security from <Source A> include terms like XYZ, while the definition from <Source B> omit these terms?"
- "Is there anything important missing if I defined cyber security like this? <your definition>"

At the end of this process, we can be confident that we can demonstrate a robust understanding of the term. You will be able to cite multiple definitions, from a variety of sources, and make an argument as to which you agree with. The final answer produced will be much more than your own words but include quotes and citations from the organisations that resonated for you, and most importantly, shaped the view you are presenting.

Figure 1. An example of guidance for planning assistance use of AI.

One challenge the teaching team found was that the students who attempted to engage with this approach in good faith were still flagging regularly within the Turnitin detection tool. This meant that under the university policy we were obliged to reach out to the student to discuss which may have caused some angst for some

students. As the Hexamester is intensive, it also meant that it could be challenging from a time management perspective around the submission and release of student marks, while also needing to meet with the students. If the academic needed to meet with the student, they would then demonstrate and provide evidence of their use (that in the majority of cases aligned to the advice given). This was, in part, why the assessment was tweaked for the next iteration in Hexamester 4 2024. The guidance was changed to be 'simple editing assistance' as is shown in the example in Figure 2. The academics also gained confidence over time to be upfront and discuss with the students the authentic nature of the assessment and why only simple editing assistance might be needed. This then seemed to have less flags in Turnitin during the assignment submission process. Further, the availability of drafts from prior to GenAI assistance, proved an effective means of assuring the academic dimension in an effective and timely manner. Regardless which level of GenAI use was allowed, the simple act of providing examples and explanations of how to use GenAI within each course provided a foundation for discussion when assessments were flagged.

Simple editing assistance guidance:

Here at UNSW Canberra we use the AI detection functionality built into Turnitin (where you submit your assessments). This feature gives the teaching team a percentage score that flags text that has a high likelihood of being generated by GenAI tools. If you use GenAI to help improve your writing you run the risk of flagging, we strongly suggest you keep a draft from before you 'run it through' your tool of choice. If your submissions are flagged with a high percentage, you will simply be able to provide the convenor with a 'before-GenAI' version of your assessment that should come back with a zero (or very low) AI score. This will approach will often shortcut any questions around plagiarism or conduct; and will give you some confidence that you are able to use the tools as intended. If you have any questions; raise them with your convenor.

Figure 2. An example of the Simple editing guidance.

Conclusion

Through conducting this process, it did lead us to the conclusion that students who engaged in good faith, in a way, were punished through needing to take additional steps to demonstrate and defend their use of their chosen tools. The process also led to a significant time commitment for the teaching teams. This led the convenors to collaborate to change to an alternative (and simpler approach) focused on simple editing assistance in the subsequent delivery. The simpler advice encourages students to complete their assessment prior to turning to AI to help refine their work, thus providing a draft that can be made available to academics and minimising the administrative burden. Despite the changing policies and shifting technology, taking the time to be transparent about our interpretation of the current rules provided both staff and students with a productive foundation for discussion and served to set expectations early. Moving forward, the team will trial use of a 'Full Assistance with Attribution' level of allowed use in some of the courses. The key feature of which is the expectation that students retain a draft from before GenAI re-writes occur, and fully cite any generated elements.

References

Abbas, M., Jam, F. A., & Khan, T. I. (2024, February 16). Is it harmful or helpful? Examining the causes and consequences of generative AI usage among university students. *International Journal of Educational Technology in Higher Education,* 21(10). https://doi.org/10.1186/s41239-024-00444-7

Abu Khurma, O., Albahti, F., Ali, N., & Bustanji, A. (2024). AI ChatGPT and student engagement: Unravelling dimensions through PRISMA analysis for enhanced learning experiences. *Contemporary Educational Technology, 16*(2), ep503. https://doi.org/10.30935/cedtech/14334

Airaj, M. (2024). Ethical artificial intelligence for teaching-learning in higher education. *Education and Information Technologies*. https://doi.org/10.1007/s10639-024-12545-x

Alier, M., Garcia-Penalvo, F-J., & Camba, J. D. (2023). Generative artificial intelligence in education: From deceptive to disruptive. *Interactive Journal of multimedia and artificial intelligence*, *8*(5), 5–14. 10.9781/ijimai.2024.02.011

Alshammari, S. H., & Alshammari, M. H. (2024). Factors affecting the adoption and use of ChatGPT in higher education. *International Journal of Information and Communication Technology Education*, *20*(1), 1–16. https://doi.org/10.4018/IJICTE.339557

Bannister, P., Santamaría-Urbieta, A., & Alcalde-Peñalver, E. (2023). A systematic review of Generative AI and (English Medium Instruction) Higher Education. *Aula Abierta*, *52*(4), 401–409. https://doi.org/10.17811/rifie.52.4.2023.401-409

Bin-Nashwan, S. A., Sadallah, M., & Bouteraa, M. (2023). Use of ChatGPT in academia: Academic integrity hangs in the balance. *Technology in Society*, *75*, 102370-. https://doi.org/10.1016/j.techsoc.2023.102370

Bower, M., Torrington, J., Lai, J. W. M. *et al.* (2024). How should we change teaching and assessment in response to increasingly powerful generative Artificial Intelligence? Outcomes of the ChatGPT teacher survey. *Education and Information Technologies*. https://doi.org/10.1007/s10639-023-12405-0

Crawford, J., Cowling, M., & Allen, K. (2023). Leadership is needed for ethical ChatGPT: Character, assessment, and learning using artificial intelligence (AI). *Journal of University Teaching and Learning Practice, 20*(3). https://doi.org/10.53761/1.20.3.02

Kelly, A., Sullivan, M., & Strampel, K. (2023). Generative artificial intelligence: University student awareness, experience, and confidence in use across disciplines. *Journal of University Teaching & Learning Practice, 20*(6). https://doi.org/10.53761/1.20.6.12

Liu, D. Y. T., Fawns, T., Cowling, M., Bridgeman, A. J. and Associates (2023). Responding to Generative AI in Australian higher education. Learning and teaching leader's roundtable on Generative AI, 20 July 2023, The University of Sydney. doi: https://doi.org/10.35542/osf.io/9wa8p

Luo, J. (2024). A critical review of GenAI policies in higher education assessment: A call to reconsider the "originality" of students' work. *Assessment & Evaluation in Higher Education*, *49*(5), 651-664. https://doi.org/10.1080/02602938.2024.2309963

Moorhouse, B. L., Yeo, M. A., & Wan, Y. (2023). Generative AI tools and assessment: Guidelines of the world's top-ranking universities. *Computers and Education Open*, *5*, 100151. https://doi.org/10.1016/j.caeo.2023.100151

Țală, M. L., Müller, C. N., Năstase, I. A., State, O., & Gheorghe, G. (2024). Exploring university students' perceptions of generative artificial intelligence in education. *Amfiteatru Economic*, *26*(65), 71–88. https://doi.org/10.24818/EA/2024/65/71

Turnitin. (2024). Turnitin's AI writing and detection capabilities. Retrieved 18 July 2024 from https://www.turnitin.com/solutions/topics/ai-writing/ai-detector/

UNSW. (2024). Chat GPT & Generative AI at UNSW | UNSW Current Students. www.student.unsw.edu.au. https://www.student.unsw.edu.au/skills/ai

Winkelmes, M. A. (2023). TILT Higher Ed: Transparency in learning & teaching. Retrieved 18 July 2024 from https://tilthighered.com/transparency

Xia, Q., Weng, X., Ouyang, F., Lin, T. J., & Chiu, T. K. F. (2024). A scoping review on how generative artificial intelligence transforms assessment in higher education. *International Journal of Educational Technology in Higher Education, 21*(1), 40–22. https://doi.org/10.1186/s41239-024-00468-z

Campbell, C., Townsend, T., & Harman, J. (2024). Addressing GenAI use through transparency in teaching and learning in a Master of Cyber Security program. In Cochrane, T., Narayan, V., Bone, E., Deneen, C., Saligari, M., Tregloan, K., Vanderburg, R. (Eds.), *Navigating the Terrain: Emerging frontiers in learning spaces, pedagogies, and technologies*. Proceedings ASCILITE 2024. Melbourne (pp. 664-668). https://doi.org/10.14742/apubs.2024.1529

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